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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/558,121	04/25/2000	Christopher Peter LaRosa	CS10088 P01	9421

7590 10/22/2004

Motorola Inc
Personal Communications Sector
Intellectual Property Department (PJB)
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EXAMINER	
ELALLAM, AHMED	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/558,121	LAROSA ET AL.	
	Examiner	Art Unit	
	AHMED ELALLAM	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 5-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1,2,5-12,15 and 32-34* is/are allowed.

6)☒ Claim(s) *13,14,18-21,23, 25-28 and 30* is/are rejected.

7)☐ Claim(s) *16,17,22,24,29 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This communication is responsive to Amendment filed on August 30, 2004. The Amendment has been entered.

Claims 1, 2, 5-34 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchinson, US (5,790,589) in view of Agarwal et al, US (6,363,108).

Regarding claim13, with reference to figures 4, Hutchison discloses a method/system for acquiring a pilot signal comprising:

Receiving a spread spectrum signal at antenna 42, the received signal is despread and multiplied by a PN code generator 60, see column 6, lines 65-67 and column 6, lines 1-24. (Claimed received signal);

A searcher controller that provides a PN offset to the PN generator 60, see column 6, lines 25-24. (Reads on generating a pseudo-random noise (PN) sequence at each of a plurality of different PN offsets);

A plurality of accumulators 48, 50, responsive to signals from searcher controller 58 for resetting, latching and setting the summation period, in connection with squaring means 52 for squaring each of the sums and adds the squares together, the sum of the squares is provided by squaring means 52 to non-coherent combiner accumulator 54, the non-coherent accumulator 54 determines an energy value from the output of squaring means 52. Further, Hutchison discloses that accumulator 54 provides the energy signal to comparison means 56 which compares energy value to predetermined thresholds supplied by searcher controller 58, and the results of each of the comparisons is then fed back to searcher controller 58. Search controller 58 examines the comparisons and determines whether the window contains likely candidates for the correct offset, see column 6, lines 35-50. Hutchison also disclose that the iterative searching method is repeated with alternating advanced and retarded search windows until either the actual location of the pilot channel in the PN code sequence is detected or a predetermined number of iterations has occurred, see column 3, lines 54-63. (Claimed interrupting the correlation when correlation energy at least equal to a predetermined threshold is produced; and choosing a PN sequence timing based upon the PN sequence and a PN offset that produce a full correlation energy at least equal to the predetermined threshold).

The difference between the invention of claim 13 and the teaching of Hutchinson is that Hutchinson correlates samples as they arrive without explicitly disclosing storing samples of the received signal to be correlated.

However, Agarwal in the same field of pilot acquisition techniques, with reference to figure 7, discloses a sample memory 502 for storing samples of a received signal, wherein the samples are correlated using PN offsets and producing a correlation energy, see column 8, lines 20-41.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to store the received signal of Hutchinson in accordance with the teaching of Agarwal so that window search size of Hutchinson can be adaptively applied to the same received signal. The advantage would be using different simultaneous searching window sizes in acquiring the pilot signal of Hutchinson resulting in a fast synchronization between the mobiles and the base station of Hutchinson.

Regarding claim 14, Examiner interpreted the feature of repeating with alternating advanced and retarded search windows until either the actual location of the pilot channel in the PN code sequence is detected or a predetermined number of iterations has occurred (see column 3, lines 54-63) as being the claimed the step of choosing a PN sequence timing in response to step of interrupting the correlation.

2. Claims 18-21, 23, 25-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal, US (6,363,108) in view of Hulbert, US (6,069,915).

Regarding claims 18 and 19, with reference to figure 7, Agarwal discloses an apparatus for acquiring a pseudo-random (PN) sequence timing for code division multiple access (CDMA) radiotelephone, the apparatus comprising:

a sample Ram 502 for storing a plurality of samples of a received signal;

a plurality of elements coupled to the RAM 502 (i.e. shift register 514, adder 520, coherent accumulator 534, and energy calculator 542), (Examiner interpreted the combination of these elements as being the claimed correlator), Agarwal further discloses Multiple search windows of offset hypotheses can be tested on the same group of sampled data for producing energy values (claimed correlation energies), see column see column 8, lines 20-41. (Claimed a correlator coupled to the buffer and operable to correlate at least a portion of the same stored samples with PN sequence at each of a plurality of different PN offsets to produce corresponding correlation energies).

Agarwal further discloses that the entire structure can be controlled by a microprocessor or DSP 564 (claimed controller) coupled to the (correlator), wherein the energy values can be used to determine the location of a pilot, by comparing each value to a predetermined threshold, see column 10, lines 47-53. Each energy value and its associated PN position (or offset) are stored in the queue 562, and the DSP 564 is notified through interrupt when a window search is complete and given access to the values stored in the sorting queue. Column 10, lines 54-67column 11, lines 1-4.

While Agarwal, discloses correlating portions of the samples with PN sequences of different PN offsets, and comparing energy values to predetermined energy threshold, it does not explicitly disclose that the DSP interrupt the correlator from further correlating portions of the samples with further PN offsets when the PN sequence at a particular PN offset produces a correlation energy at least equal to a correlation threshold.

However, Hulbert discloses correlating received signal samples with a local PN generation and that completing the correlation once a predetermined threshold is found, see column 2, lines 6167 and column 3, lines 3. (Claimed interrupt the correlator from correlating portions of the samples with further PN sequences of different PN offset, when the PN sequence at a particular PN offset produces a correlation energy at least equal to an energy threshold).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to interrupt the correlation of Agarwal upon determined energy threshold using the method of Hubert so that in addition to receiving interrupt by the DSP of Agarwal, an interruption to the correlation would be necessary to reduce power consumption upon achieving the energy threshold. The advantage would be less power consumption in Agarwal mobile terminal.

Regarding claim 20, with reference to figure 7, Agarwal discloses a sorting queue 562 for storing a predetermined number of highest energy values and the corresponding PN offsets. See column 11, lines 1-4.

Regarding claim 21, Agarwal discloses that the DSP is notified when a window search is complete, to access the energy values and their corresponding PN offset from the sorting queue. See column 11, lines 1-4. (Claimed after a predetermined number of correlations none of the produced correlation energies at least equal the energy threshold, the controller chooses from the memory a PN offset corresponding to a highest correlation energy), (Examiner interpreted the sorting queue is being provided to have the highest energy value sorted by the DSP among the highest values stored).

Regarding claim 23, Agarwal with reference to figure 7, discloses the generation of PN sequences at plurality of the PN offsets. (Examiner interpreted the generation of PN offset by a generator similar to that of figure 2, unit 23), the PN generator is located between the sample RAM and the correlator, (the correlator being specified above with reference to claim 18). (Claimed a PN sequence generator coupled to the buffer and the correlator to generate the PN sequence at each of the plurality of different PN sequence).

Regarding claims 25 and 26, with reference to figures 1 and 7, Agarwal discloses a code division multiple access (CDMA) system comprising:

A plurality of base stations 1(2A, 12B 12C and 12D) for transmitting a pilot signal having a particular time alignment; See column 1, lines 11-67, and column 2, lines 1-54;

A mobile station (10A of figure 1 as an example) (claimed cellular telephone operable to receive representations of the pilot signal), the cellular telephone comprising:

a sample Ram 502 for storing a plurality of samples of a received signal; a plurality of elements coupled to the RAM 502 (i.e. shift register 514, adder 520, coherent accumulator 534, and energy calculator 542), (Examiner interpreted the combination of these elements as being the claimed correlator), Agarwal further discloses Multiple search windows of offset hypotheses can be tested on the same group of sampled data for producing energy values (claimed correlation energies), see column see column 8, lines 20-41. (Claimed a correlator coupled to the buffer and operable to correlate at least a portion of the same stored samples with PN sequence

at each of a plurality of different PN offsets to produce corresponding correlation energies).

Agarwal further discloses that the entire structure can be controlled by a microprocessor or DSP 564 (claimed controller) coupled to the (correlator), wherein the energy values can be used to determine the location of a pilot, by comparing each value to a predetermined threshold, see column 10, lines 47-53. Each energy value and its associated PN position (or offset) are stored in the queue 562, and the DSP 564 is notified through interrupt when a window search is complete and given access to the values stored in the sorting queue. Column 10, lines 54-67column 11, lines 1-4.

While Agarwal, discloses correlating portions of the samples with PN sequences of different PN offsets, and comparing energy values to predetermined energy threshold, it does not explicitly disclose that the DSP interrupt the correlator from further correlating portions of the samples with further PN offsets when the PN sequence at a particular PN offset produces a correlation energy at least equal to a correlation threshold.

However, Hulbert discloses correlating received signal samples with a local PN generation and that completing the correlation once a predetermined threshold is found, see column 2, lines 6167 and column 3, lines 3. (Claimed interrupt the correlator from correlating portions of the samples with further PN sequences of different PN offset, when the PN sequence at a particular PN offset produces a correlation energy at least equal to an energy threshold).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to interrupt the correlation of Agarwal upon determined energy threshold using the method of Hubert so that in addition to receiving interrupt by the DSP of Agarwal, an interruption to the correlation would be necessary to reduce power consumption upon achieving the energy threshold. The advantage would be less power consumption in Agarwal mobile terminal.

Regarding claim 27, Agarwal discloses a sorting queue 562 for storing a predetermined number of highest energy values and the corresponding PN offsets. See column 11, lines 1-4.

Regarding claim 28, Agarwal discloses that the DSP is notified when a window search is complete, to access the energy values and their corresponding PN offset from the sorting queue. See column 11, lines 1-4. (Claimed after a predetermined number of correlations none of the produced correlation energies at least equal the energy threshold, the controller chooses from the memory a PN offset corresponding to a highest correlation energy). (Examiner interpreted the sorting queue is being provided to have the highest energy value sorted by the DSP among the highest values stored).

Regarding claim 30, Agarwal with reference to figure 7, discloses the generation of PN sequences at plurality of the PN offsets. (Examiner interpreted the generation of PN offset by a generator similar to that of figure 2, unit 23), the PN generator is located between the sample RAM and the correlator, (the correlator being specified above with reference to claim 18). (Claimed a PN sequence generator coupled to the buffer and the

correlator to generate the PN sequence at each of the plurality of different PN sequence).

Allowable Subject Matter

3. Claims 1, 2, 5-12,15, 32-34 are allowed.

Claims 16,17, 22, 24, 29 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments, see Response to Final Rejection, filed August 30, 2004, with respect to the rejection(s) of claim(s) 13, 14, 18-20, 23, 25-27 and 30 as being unpatentable over Storm, US 6,144,649 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Agarwal, US (6,363,108).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sarkar, US (6,363,060); Haartsen, US (6,960,048).

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

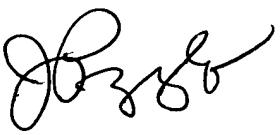
TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM
Examiner
Art Unit 2662
Monday, October 18, 2004



JOHN PEZZLO
PRIMARY EXAMINER